FACT SHEET

NPDES Permit Number: AK-002155-5
Date: April 23, 1999
Public Notice Expiration Date: May 24, 1999

The United States Environmental Protection Agency (EPA) proposes to re-issue a National Pollutant Discharge Elimination System (NPDES) permit to:

CITY OF KODIAK
853 Spruce Cape Road
Kodiak, Alaska 99615

and requests the state of Alaska to certify this NPDES permit pursuant to 40 CFR Part 124.53 and issue a consistency determination.

NPDES Permit Re-Issuance

EPA proposes to re-issue an NPDES permit to the City of Kodiak. The draft permit places conditions on the discharge of pollutants from the wastewater treatment plant effluent to the **Woody Island Channel** and transfer biosolids to a solid waste landfill unit at the **Kodiak Island Borough Municipal Landfill** pursuant to the provisions of the Clean Water Act (CWA).

This Fact Sheet includes:

- information on public comment, public hearing and appeal procedures;
- a description of the current discharge and biosolids practices;
- a listing of past and proposed effluent limitations, schedules of compliance and other conditions;
- a map and description of the wastewater discharge and solid waste landfill location; and
- detailed technical material supporting the conditions in the permit.

Alaska State Certification

EPA requests the Alaska Department of Environmental Conservation to certify the NPDES permit for the City of Kodiak, under section 401 of the CWA. The state provided a preliminary certification prior to the Public Notice period which have incorporated or addressed stipulations into the fact sheet and draft permit.

Alaska State Consistency Determination

EPA requests the state of Alaska, Office of Management and Budget, Division of Governmental Coordination, to review this action for consistency with the approved Alaska Coastal Management Program.

Public Comment

Persons wishing to comment on or request a Public Hearing for the proposed permit may do so in writing by the expiration date of the Public Notice. A request for a Public Hearing must state the

nature of the issues to be raised as well as the requester's name, address and telephone number. All comments and requests for Public Hearing must be submitted to EPA as described in the Public Comments Section of the attached Public Notice.

If no substantive comments are received, the tentative conditions in the draft permit will become final, and the permit will become effective upon issuance. If comments are received, EPA will address the comments and issue the permit. The permit will become effective 30 days after the issuance date, unless a request for an evidentiary hearing is submitted within 30 days.

Availability of Documents

The draft NPDES permit and other related documents can be obtained or reviewed by visiting or contacting EPA's Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday (See address below). Draft permits, Fact Sheets, and other information can also be found by visiting the Region 10 website at www.epa.gov/r10earth/offices/water/npdes.htm.

United States Environmental Protection Agency (EPA)
Region 10
Park Place Building, 13th Floor
1200 Sixth Avenue, OW-130
Seattle, Washington 98101
(206) 553-1214 or
1-800-424-4372

This material is also available from:

United States Environmental Protection Agency (EPA)
Alaska Operations Office
222 W. 7th Ave #19
Anchorage, Alaska, 99513-7588
(907)271-6561

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A. Applicant

City of Kodiak
Wastewater Treatment Plant (WWTP)

Facility Location:
853 Spruce Cape Road
Kodiak, Alaska 99615

Mailing Address:
P.O. Box 1397
Kodiak, Alaska 99615

Facility Contact: John Sullivan, Public Works Director
(907)486-8060

B. Activity

The city of Kodiak is located on the island of Kodiak. The city owns and operates a municipal wastewater treatment plant that provides secondary treatment and disinfection of wastewater prior to discharge in Woody Island Channel.

The plant receives domestic wastewater from residential and commercial sources; there are no significant industrial dischargers. The facility's average design flow is 2.13 million gallons per day (mgd). However, the plant is currently being upgraded and the plant design flow will increase to 3.7 mgd. Details about the treatment process are discussed in Appendix A.

C. Facility History. The existing wastewater treatment plant was placed into service in 1978. It was originally designed in 1975 as a secondary treatment system consisting of a grit collector, oxidation cells, two aeration tanks, two secondary clarifiers, an activated sludge process, disinfection, and a centrifuge for sludge dewatering. In 1980, it was determined that the facility was not functioning according to the design, so the City applied for a waiver of the secondary treatment requirements under Section 301(h) of the CWA. The waiver was granted in 1985, however the facility opted to disregard the waiver and continue operations as a secondary treatment plant. To meet the requirements of secondary treatment and sludge disposal, improvements to the sludge treatment system were added in to include a drum filter press. In 1991, the grit collector and sludge treatment system were upgraded to include new screens and lime addition systems, and the drum filter press was replaced with a new sludge belt press. That same

year, the City conducted a study to determine the plant capacity in relation to proposed sewer line extensions into new development areas. This led to the current construction project that is further discussed in Appendix A.

D. Permit History

Date	Action
October 29, 1974	Initial permit issuance - contained compliance schedule to meet secondary treatment. Expiration date: April 30, 1979.
1978	Facility placed into service.
September 13, 1978	Request waiver for secondary treatment under Section 301(h).
January 3, 1983	301(h) application complete.
May 31, 1985	301(h) waiver granted. Permit re-issued. Expiration date: July 2, 1990.
February 17, 1987	Application received to recind 301(h) conditions and modify permit.
March 11, 1988	Permit modification. Included development of fecal coliform effluent limits and ambient monitoring, prohibition of chlorine use unless necessary to meet fecal limit, increase BOD and TSS load limits, decrease BOD and TSS percent removal requirement, and lower pH upper limits from 9.0 to 8.5. Expiration date: April 12, 1993.
May 24, 1994	Application received for permit re-issuance.
September 3, 1998	Request updated application for permit re-issuance.
October 19, 1998	Application received for permit re-issuance.

E. Plant Performance

A review of the Discharge Monitoring Reports (DMRs) and Compliance Sampling Inspection Reports for the past 3 years shows that the existing Kodiak plant has generally been in compliance with the terms of the current permit with only two reported violations. Both violations were exceedances in the daily maximum limit and occurred in September of 1997; one for BOD and the other for TSS. A summary of the plant performance for the past five years is provided in Table I-1.

TABLE I-1. SUMMARY OF PLANT PERFORMANCE (1996 - 1998)			
Parameter	**Units**	**Plant Performance**	**# Reported Violations**
Flow	mgd	1.52 - 2.92	N/A
Average Monthly Effluent BOD_5	mg/L	3.8 - 21.3	1
	lbs/day	55 - 342	0
% Removal, BOD_5	percent	80 - 96	0
Average Monthly Effluent TSS	mg/L	6.7 - 28.5	1
	lb/day	107 - 456	0
% Removal, TSS	percent	76 - 94	0
Average Montly Fecal Coliform Bacteria	colonies/100 mL	35,000 - 196,000	0
pH	s.u.	6.29 - 7.60	0

The DMRs indicate that the facility has been operating at flows above the design flow for the plant. The facility had anticipated this and is currently upgrading the facility to accommodate current and future flows through 2018. (See Appendix A for upgrade specifics.)

II. RECEIVING WATER

Woody Channel, Alaska

The City of Kodiak WWTP effluent discharges to Woody Island Channel through outfall 001, located at latitude 57°48'12" and longitude 153°20'18". The Woody Island Channel separates the islands of Kodiak and Woody by a distance of approximately 4,000 feet. Peak surface currents at the center of the Channel have been measured at 1.25 knots. The average tidal range is 8 feet at Kodiak with a predicted mean tidal current velocity of 0.7 to 0.8 knots. Salinities range from 31 ppt at the surface to 33 ppt at outfall depth. dissolved oxygen levels ranged from 7.7 to 11.1 mg/L and the Secchi disc transparency depth ranges from 5 to 13 feet. The outfall pipe extends 987.5 feet into Woody Island Channel and terminates at a depth of 25.5 feet below MLLW.

The state of Alaska water quality standards (AAC, 1997) designates the following uses for Woody Island Channel:

- Water supply for aquaculture, seafood processing and industry;
- Contact and secondary water recreation;

- Growth and propagation of fish, shellfish, other aquatic life and wildlife; and
- Harvesting for consumption of raw mollusks or other raw aquatic life.

III. EFFLUENT LIMITATIONS

Sections 101, 301(b), 304, 308, 401, 402 and 405 of the CWA provide the basis for the effluent limitations and other conditions in the draft permit. The EPA evaluates discharges with respect to these sections of the CWA and the relevant NPDES regulations in determining which conditions to include in the permit.

In general, EPA first determines which technology-based limits are required to be incorporated into the permit (40 CFR Part 122.44[a]), as well as best management practices or other requirements. Technology-based limits for municipal facilities are derived from secondary treatment standards (40 CFR Part 133.102) and based on end-of-pipe technology. However, the CWA requires NPDES permitted discharges to demonstrate compliance with state water quality standards.

Water quality-based limits are derived from state water quality standards to protect the water quality of state waters. Therefore, the effluent limitations are developed from technology available to treat the pollutants (technology-based limits) and limits that are protective of the designated uses of the receiving water (water quality-based limits). The proposed permit will reflect whichever limits (technology-based or water quality-based) are more stringent.

A. Summary of Draft Permit Limitations

For wastewater treatment plants, technology-based limits cover three parameters: five day Biochemical Oxygen Demand (BOD_5), total suspended solids (TSS) and pH. In the permit application, the City of Kodiak identified the following additional pollutants as being present in their discharge: fecal coliform bacteria, temperature, DO, total residual chlorine, arsenic, cadmium, chromium, copper, lead, silver, and zinc. Nutrients have also been identifies as being pollutants of concern with WWTPs and are addressed in this section.

Arsenic, cadmium, chromium, copper, lead, silver, and zinc were indicated as present because of a previous analysis that was performed on the treatment plant effluent. The analysis showed that arsenic, cadmium, and chromium are present in levels well below the maximum allowable level for water quality. Further analysis of the data indicated that temperature, copper, lead, silver, and zinc did not provided a reasonable potential to violate water quality standards (See Appendix C). Since there is no data that indicates there is a nutrient problem with this facility, no limits will be imposed at this time. Therefore, the draft permit is

proposing effluent limitations for BOD, DO, fecal coliform bacteria, pH, TSS, and total residual chlorine.

Table III-1 presents the City of Kodiak's proposed effluent limitations for their wastewater treatment plant. For comparison purposes, the table also shows the effluent limitations of the current permit.

TABLE III-1. PROPOSED EFFLUENT LIMITATIONS

Parameter	Units	Monthly Average		Weekly Average		Maximum Daily		Minimum Daily	
		Current (1988)	Draft (1999)	Current (1988)	Draft (1999)	Current (1988)	Draft (1999)	Current (1988)	Draft (1999)
BOD_5	mg/L	30	30	45	45	60	60	---	--
	lb/day	530	800	800	1200	1060	1865	---	---
	% removal	75	75	---	---	---	---	---	---
DO	mg/L	---	---	---	---	---	17	---	6.0
Fecal Coliform	#/100 mL	0.5×10^6	1.0×10^5	---	1.5×10^5	1×10^6	2.0×10^5	---	---
Flow	mgd	---	4.7	---	---	---	6.2	---	---
pH	s.u.	---	---	---	---	8.5	8.5	6.0	6.5
TSS	mg/L	30	30	45	45	60	60	---	---
	lb/day	530	800	800	1200	1060	1865	---	---
	% removal	75	75	---	---	---	---	---	---
Total Residual Chlorine	mg/L	---	---	---	---	below detect levels[1]	0.002[2]	---	---

1 Based upon the DPD or amperometric methods.
2 The effluent limit for chlorine is not quantifiable using EPA approved analytical methods. The permittee will be in compliance with the effluent limits provided the total chlorine residual is at or below the compliance evaluation level of 0.100 mg/L.

B. Water Quality Criteria. The following Alaska water quality criteria are applicable to pollutants of concern for Woody Island Channel:

18 AAC 70.015 Antidegradation

18 AAC 70.020 Protected Water Use Classes and Subclasses; Water Quality Criteria; Water Quality Standards Table

18 AAC 70.030 Whole Effluent Toxicity Limit

18 AAC 70.240	Mixing Zones: Department Authorization
18 AAC 70.245	Mixing Zones: Appropriateness and Size
18 AAC 70.250	Mixing Zones: General Conditions
18 AAC 70.255	Mixing Zones: In-Zone Quality and Size
18 AAC 70.260	Mixing Zones: Application Requirements
18 AAC 70.270	Mixing Zones: Termination, Modification, or Denial of Renewal

C. Mixing Zone

The state of Alaska water quality standards allows the exceedance of water quality criteria and limits within a mixing zones authorized by ADEC when the receiving water quality meets state water quality standards. The mixing zones do not impair the integrity of the water body as a whole, do not allow lethality to organisms passing through, and do not pose any serious health risks considering likely pathways of exposure.

In the case of a state approved mixing zone, the wasteload allocation (WLA) is calculated as a mass balance, based on the available dilution, background concentrations, and the State approved water quality criteria. When the receiving water exceeds the criterion for the pollutant or the State has not authorized a mixing zone for a particular pollutant, there is no dilution available for the effluent and the State adopted criterion becomes the WLA.

Conversation and correspondence with the Alaska Department of Environmental Conservation (ADEC) provided the EPA with draft allowable mixing zones for fecal coliform, WET and metals (copper, lead, silver, zinc). ADEC has tentatively designated a mixing zone for outfall 001 for the protection of aquatic life. The mixing zone for fecal coliform represents a rectangular area 400 meters wide x 3200 meters long with the diffuser centered on the midpoint. The zone of initial dilution (ZID) for WET and metals represents a 30 meter radius with the diffuser centered on the midpoint. The ZID was determined to be a maximum 90:1 dilution.

EPA has incorporated the tentative mixing zones and fecal coliform effluent limits into the draft permit. The State will be asked to certify these mixing zones and fecal coliform limits prior to final issuance of the permit. If certification of the mixing zones or fecal coliform limits are not provided, the limitations in the permit

will be recalculated based on meeting water quality standards at the point of discharge. Should the certification of the mixing zones reflect a different level of dilution than that used to develop the draft permit limits, the limitations will be recalculated to reflect the certified information prior to final issuance.

D. Evaluation of Effluent Limitations

1. Biochemical Oxygen Demand, five-day (BOD_5)

The City of Kodiak WWTP is a secondary treatment facility that is subject to the federal technology-based requirements for BOD_5. These requirements state that the 30-day average shall not exceed 30 mg/L, the 7-day average shall not exceed 45 mg/L, and the 30-day average percent removal shall not be less than 85 percent. These limitations are incorporated into the permit as both concentration limits and loading limits. The loadings are determined by multiplying the appropriate concentration in mg/L by the design flow in mgd and a conversion factor of 8.34 (to convert from mg/L to lb/day).

Additionally, the draft permit includes a maximum daily limit because the state water quality standards give provisions for this type of limit in their secondary treatment standards. The state definition of "secondary treatment" requires a limit for BOD_5 of 60 mg/L based on the arithmetic mean of the values for effluent samples collected in a 24-hour period.

In the permit application submitted by the facility, it was requested that consideration for continuing the current percent removal of 75% for the plant be given due to the low concentration of their influent wastewater. Information provided by the facility, based on a Sewer Study completed in 1998, satisfactorily met the requirements (40 CFR 133.103[d]) for reducing the percent removal from the secondary treatment requirements.

The draft permit proposes the following BOD_5 limits: 30 mg/L (800 lb/day) average monthly limit, 45 mg/L (1200 lb/day) average weekly limit, 60 mg/L (1865 lb/day) daily maximum limit, and >75% average monthly removal.

2. Dissolved Oxygen (DO)

The Alaska water quality standards require the surface DO concentration in coastal water to be greater than or equal to 6.0 mg/L for a depth of one meter except when natural conditions cause this value to be depressed. Further, DO concentrations may not be reduced below 4 mg/L at any point

beneath the surface and may not exceed 17 mg/L in any case or 110% of saturation at any point of sample collection.

The draft permit proposes that DO is between 6.0 and 17 mg/L in the permittee's effluent at the point of discharge.

3. Fecal Coliform Bacteria

Fecal coliform is a non-pathogenic indicator species whose presence suggests the likelihood that pathogenic bacteria are present. Alaska water quality standards for harvesting are the most stringent criteria that would apply at the edge of the mixing zone. This criteria requires that, based on a 5-tube decimal dilution test, the fecal coliform median MPN may not exceed 14 FC/100 mL, and not more than 10% of the samples may exceed a fecal coliform median MPN of 43 FC/100 mL.

The state of Alaska Department of Environmental Conservation has taken this standard into consideration in the development of a mixing zone for this facility. The State has modeled the fate and transport of this pollutant parameter and has determined the limits for the facility to be $1.0x10^5$ FC/100 mL average monthly limit, $1.5x10^5$ FC/100 mL average weekly limit, and $2.0x10^5$ FC/100 mL maximum daily limit.

The draft permit is proposing the following fecal coliform limits: $1.0x10^5$ FC/100 mL average monthly limit, $1.5x10^5$ FC/100 mL average weekly limit, and $2.0x10^5$ FC/100 mL maximum daily limit. A review of the facility performance over the past three years indicates that the facility will be able to meet these limits.

4. Nutrients

Nutrients consist of phosphorus, nitrogen and carbon compounds. Alaska water quality standards provide water quality criteria for nutrients. The nutrients of concern for this facility are nitrates and phosphorus. Since these parameters have not historically been sampled for in the effluent or the receiving water, no limits will be imposed on the facility. However, monitoring of nutrients will be included as a condition of the permit to enable reasonable potential to be determined for the next re-issuance of the permit (see section on Monitoring for more details).

No limit for nutrients is proposed in the draft permit.

5. pH

The technology-based limitation, based on federal regulations (40 CFR Part 133.102) is 6.0 to 9.0 standard units. The most stringent Alaska water quality standards give an allowable pH range of 6.5 to 8.5 standard units. Since the more limiting case applies, the Alaska water quality limit will apply to the facility's effluent.

The draft permit proposes a pH limit of 6.5 to 8.5 standard units.

6. Residues

The Alaska water quality standards require surface waters of the state to be free from floating solids, debris, sludge, deposits, foam, scum, or other residues of any kind in concentrations causing nuisance, objectionable, or detrimental conditions or that make the water unfit or unsafe for the use. Residues may not, alone or in combination with other substances or wastes, (1) make the water unfit or unsafe for the use; (2) cause acute or chronic problem levels as determined by bioassay or other appropriate methods; (3) cause a film, sheen, or discoloration on the surface of the water or adjoining shorelines; (4) cause leaching of toxic or deleterious substances; or (5) cause a sludge, solid, or emulsion to be deposited beneath or upon the surface of the water, within the water column, on the bottom, or upon adjoining shorelines.

The draft permit proposes that the facility meet a narrative standard for floating solids, visible foam, or oily wastes.

7. Temperature

The most stringent Alaska water quality standard for temperature require that waters exhibit temperatures at or below fifteen (15) degrees C. Furthermore, waters may not cause the weekly average temperature to increase more than 1°C. The maximum rate of change may not exceed 0.5°C per hour and the normal daily temperature cycles may not be altered in amplitude or frequency.

The facility has conducted some self-monitoring for temperature of their influent and the receiving water. The maximum daily temperature recorded over the last two years was 15.9°C, which is 0.9°C greater than allowed by the Alaska standards. Considering the flow regime and temperature gradients of the receiving water, the effluent temperature is not likely to increase the receiving water temperature to levels that would violate the water quality standards.

Therefore, no limits will be imposed on the facility. However, monitoring of temperature will be included as a condition of the permit to ensure compliance with this standard (see section on Monitoring for more details).

No limit for temperature is proposed in the draft permit.

8. Total Residual Chlorine (TRC)

The Kodiak WWTP uses chlorine contact to disinfect the effluent for control fecal coliform bacteria. The most stringent state water quality criteria for total residual chlorine to protect designated uses requires that concentrations may not exceed 2.0 µg/L for salmonid fish. Furthermore, the previous permit requirement for TRC was that the effluent concentration contain below detect levels based on DPD or amperometric methods. Since the criteria and the current limit are below the capability of current analytical technology's ability to detect chlorine for the DPD method cited in 40 CFR Part 136, the detection limit[1] of 0.100 mg/L will be the compliance limit.

The draft permit proposes a TRC limit of 0.002 mg/L as a maximum daily limit with a compliance limit of 0.050 mg/L based on the DPD method approved in 40 CFR Part 136.

9. Total Suspended Solids (TSS)

The City of Kodiak WWTP is a secondary treatment facility that is subject to the federal technology-based requirements for TSS. These requirements state that the 30-day average shall not exceed 30 mg/L, the 7-day average shall not exceed 45 mg/L, and the 30-day average percent removal shall not be less than 85 percent. These limitations are incorporated into the permit as both concentration limits and loading limits. The loadings are determined by multiplying the appropriate concentration in mg/L by the design flow in mgd and a conversion factor of 8.34 (to convert from mg/L to lb/day).

Additionally, the draft permit includes a maximum daily limit because the state water quality standards give provisions for this type of limit in their secondary treatment standards. The state definition of "secondary

[1]The detection limit is the minimum concentration that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. The detection limit achievable by the Kodiak WWTP is 0.050 mg/L.

treatment" requires a limit for TSS of 60 mg/L based on the arithmetic mean of the values for effluent samples collected in a 24-hour period.

In the permit application submitted by the facility, it was requested that consideration for continuing the current percent removal of 75% for the plant be given due to the low concentration of their influent wastewater. Information provided by the facility, based on a Sewer Study completed in 1998, satisfactorily met the requirements (40 CFR 133.103[d]) for reducing the percent removal from the secondary treatment requirements.

The draft permit proposes the following TSS limits: 30 mg/L (800 lb/day) average monthly limit, 45 mg/L (1200 lb/day) average weekly limit, 60 mg/L (1865 lb/day) daily maximum limit, and >75% average monthly removal.

10. Toxics and Other Deleterious Organic and Inorganic Substances

Alaska water quality standards require that there may be no concentrations of toxic substances in water or in shoreline or bottom sediments, that, singly or in combination, cause, or reasonably can be expected to cause, toxic effects on aquatic life. These standards also state that individual substances may not exceed criteria for toxics.

a. Copper

The water quality criteria for aquatic life requires an acute limit of 2.9 µg/L and a chronic limit of 4.0 µg/L. The water quality criteria for human health requires a limit of 1.0 mg/L. Therefore, the acute aquatic life criteria is used for copper since it is more limiting. A analysis was performed to determine if this pollutant had reasonable potential to violate water quality standards (See Appendix C).

No limit for copper is proposed in the draft permit.

b. Lead

The water quality criteria for aquatic life requires an acute limit of 0.140 mg/L and a chronic limit of 5.6 µg/L. The water quality criteria for human health requires a limit of 0.050 mg/L. Therefore, the chronic aquatic life criteria is used for lead since it is more limiting. A analysis was performed to determine if this pollutant had reasonable potential to violate water quality standards (See Appendix C).

No limit for lead is proposed in the draft permit.

c. Silver

The water quality criteria for aquatic life requires an acute limit of 2.3 µg/L. The water quality criteria for human health requires a limit of 0.050 mg/L. Therefore, the acute aquatic life criteria is used for silver since it is more limiting. A analysis was performed to determine if this pollutant had reasonable potential to violate water quality standards (See Appendix C).

No limit for silver is proposed in the draft permit.

d. Zinc

The water quality criteria for aquatic life requires an acute limit of 0.095 mg/L and a chronic limit of 0.058 mg/L. The water quality criteia for human health requires a limit of 5.0 mg/L. Therefore, the chronic aquatic life criteria is used for zinc since it is more limiting. A analysis was performed to determine if this pollutant had reasonable potential to violate water quality standards (See Appendix C).

No limit for zinc is proposed in the draft permit.

11. Sediment

The Alaska water quality standards for sediments require that the concentration of settleable solids in the receiving water may not increase above natural conditions, the loading may not interfere with water supply treatment levels, and may not pose hazards to incidental human contact. Since this is a secondary treatment plant and there is ample mixing in the receiving water, the secondary treatment standards for TSS should be able to fulfill this requirement.

E. Antidegradation. In proposing to reissue this permit, EPA as considered Alaska's antidegradation policy. This provision states that "the existing instream water uses and the level of water quality necessary to protect the existing uses will be maintained and protected." This policy is designed to protect existing water quality when the existing water quality is better than that required to meet the standard and to prevent water quality from being degraded below the standard when existing quality just meets the standard. The draft permit will result in decreases in the authorized pollutant loadings to the Woody Island Channel.

Therefore, the draft permit will not result in degradation of water quality and is consistent with Alaska's antidegradation policy.

IV. MONITORING REQUIREMENTS

Section 308 of the CWA and federal regulation 40 CFR Part 122.44(i) requires that monitoring be included in permits to determine compliance with effluent limitations. Additionally, monitoring may be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality. Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. The permittee is responsible for conducting the monitoring and for reporting results with Discharge Monitoring Reports (DMRs) to EPA.

A. Effluent Monitoring. Table IV-1 presents the effluent monitoring requirements for the draft permit. For comparison purposes, the table also includes the monitoring requirements of the current permit. Where the requirements differ, a discussion will be provided in the table notes.

TABLE IV-1: EFFLUENT MONITORING FREQUENCY REQUIREMENTS		
Parameter	**Current Permit (1988)**	**Draft Permit (1999)**
Ammonia as N	NR[2]	2/month
BOD_5[4]	1/week	2/month
DO[3]	NR[2]	2/month
Fecal Coliform Bacteria[4]	1/week	2/month
Flow	continuous	continuous
Metals[5]	NR[2]	2/year
Nitrate as N[3]	NR[2]	2/month
pH	1/day	5/week
Phosphorus as P[3]	NR[2]	2/month
Temperature[3]	NR[2]	5/week
TSS[4]	1/week	2/month
Total Residual Chlorine (TRC)[1,4]	2/day	5/week

1 Requirement applies only when used.
2 NR means Not Required.
3 New requirement to ensure compliance with Alaska water quality standards.
4 The monitoring was reduced due to the facilities good record of compliance and discharge of pollutant levels below permit requirements.
5 Copper, lead, silver and zinc measured as total residual.

B. Ambient Monitoring. The purpose of ambient monitoring is to determine water quality conditions as part of the effort to evaluate the reasonable potential for the discharge to cause an instream excursion above water quality criteria. The draft permit requires the permittee to conduct ambient monitoring at the edge of the mixing zone for outfall 001. Ambient monitoring shall consist of the following:

TABLE IV-2: AMBIENT MONITORING FREQUENCY REQUIREMENTS		
Parameter	**Current Permit (1988)**	**Draft Permit (1999)**
DO[1]	NR[2]	2/year
Fecal Coliform Bacteria	2/year	1/month (April - September)
		1/quarter (October - March)
Metals[4]	NR[2]	2/year
Nitrate as N[1]	NR[2]	2/year
pH[3]	NR[2]	1/quarter
Phosphorus as P[3]	NR[2]	2/year
Temperature[3]	NR[2]	1/quarter

1 New requirement to ensure compliance with Alaska water quality standards.
2 NR means Not Required.
3 The monitoring was reduced due to the facilities good record of compliance and discharge of pollutant levels below permit requirements.
4 Copper, lead, silver and zinc measured as total residual.

V. SLUDGE MANAGEMENT

Since the issuance of the current permit, the sludge management regulations (40 CFR Part 503) have been promulgated. These regulations were designed so that the standards are directly enforceable against most users or disposers of sewage sludge, whether or not they obtain a permit. Therefore, the publication of Part 503 in the *Federal Register* on February 19, 1993, served as notice to the regulated community of its duty to comply with the requirements of the rule, except those requirements that indicate that the permitting authority shall specify what has to be done.

Even though Part 503 is largely self-implementing, Section 405(f) of the CWA requires the inclusion of sewage sludge use or disposal requirements in any NPDES permit issued to a Treatment Works Treating Domestic Sewage (TWTDS). In addition, the sludge permitting regulations in 40 CFR Parts 122 and 124 have been revised to expand its authority to issue NPDES permits with these requirements. This includes all sewage sludge generators, sewage sludge treaters and blenders, surface disposal sites and sewage sludge incinerators. Therefore, the requirements of 40 CFR Part 503 have to be met when sewage sludge is applied to the land, placed on a surface disposal site, placed on a municipal solid waste landfill (MSWLF) unit, or fired in a sewage sludge incinerator.

Requirements are included in Part 503 for pollutants in sewage sludge, the reduction of pathogens in sewage sludge, the reduction of the characteristics in sewage sludge that attract vectors, the quality of the exit gas from a sewage sludge incinerator stack, the quality of sewage sludge that is placed in a MSWLF unit, the sites where sewage sludge is either land applied or placed for final disposal, and for a sewage sludge incinerator. The sections of Part 503 applicable to this facility's proposed practices are Section A (General Provisions, 503.1-9) and Section D (Pathogen & Vector Control, 503.30-33). Additionally, Part 503 requires compliance with Part 258 for disposal of sewage sludge in a MSWLF.

A. Activity

The City of Kodiak WWTP's sewage sludge is primarily domestic in nature. The sludge is thickened and dewatered in a belt filter press. The screenings and dewatered sludge are then treated with lime and fed to a City maintenance truck for hauling to the Kodiak Island Borough Municipal Landfill. At the landfill, the sewage sludge will be disposed in between bales of residential garbage where it is allowed to dry for 24-hours before it is covered with soil. The upgraded facility is designed to accept sewage sludge from the Coast Guard station that will be blended and treated with the City's sewage sludge. The draft permit requires the City to develop a sludge plan that details other sewage sludge disposal options (i.e., drying beds) if the disposal site is not available.

B. Sludge Management Requirements. To ensure compliance with the CWA and the federal standards for the use or disposal of biosolids (40 CFR Part 503), the draft permit contains the requirements of this section.

1. Health & Environment. The CWA Section 405(d)(4) requires that the environment and public health be protected from toxic effects of any pollutants in sludge using a combination of the national standards for some pollutants, and permits for the use of others. Therefore, the draft permit requires the permittee to handle and use or dispose of sludge in such a way as to protect human health and the environment. The permittee is also responsible for determining the pollutants allowed to accumulate in the sewage sludge and for preventing harm to human health and the environment from those pollutants.

2. State Laws and Future Federal Standards. The federal regulations (40 CFR Part 122.41[a]) require the permittee to comply with the standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the

requirement. Therefore, a condition has been incorporated into the draft permit that requires the permittee to comply with all existing federal and state laws, and all regulations applying to sewage sludge use and disposal.

3. Protection of Surface Waters from Sludge Pollutants. Section 405(a) of the CWA specifically prohibits any practice where sludge pollutants removed in a treatment works at one location would ultimately enter surface waters at another location without a specific permit. Under this requirement, the permittee is required to protect surface waters from release of pollutants (i.e., metals, nutrients, pathogens, etc.) contained in the sludge. Therefore, the draft permit includes a requirement for the permittee to develop individual site practices to prevent the release of pollutants in sewage sludge to surface waters.

4. Pathogen and Vector Attraction Reduction. The facility is required to meet one of the Class A or Class B pathogen reduction alternatives in Part 503.32 or the vector attraction reduction methods listed in Part 503.33. The application indicated that the facility is going to meet Class B pathogen reduction and option 6 (raise pH to 12 and retain at 11.5) vector attraction reduction using lime stabilization.

5. Sludge Management Plan. The draft permit also includes a requirement for the permittee to develop a sludge plan that entails alternative methods for management of sludge generated by the facility in the event that the current sludge management practices cannot be performed or the surface disposal site is no longer available. The plan must be approved by EPA and the state of Alaska prior to implementation.

C. Monitoring. Part 503 does not impose monitoring requirements for the owner/operator of the MSWLF or the preparer (City of Kodiak WWTP). However, 40 CFR Part 503.4 states that any person who prepares sewage sludge that is disposed in a MSWLF unit shall ensure that the sewage sludge meets the requirements in 40 CFR Part 258. The two main requirements that pertain to this facility are the exclusions for disposal of hazardous waste and liquids restrictions. To meet these requirements, the preparer must ensure the sewage sludge is not hazardous and that sewage sludge does not contain free liquids.

In order to demonstrate that the sludge disposed to the landfill is not hazardous, the draft permit proposes that the permittee conduct an annual Toxicity Characteristic Leaching Procedure (TCLP) test. Since the vector attraction treatment process (lime addition) produces a sludge that contains no free liquids, no requirement for free liquids testing (e.g., Paint Filter Liquids Test) is proposed in the draft permit.

VI. SPECIAL CONDITIONS

A. Quality Assurance Project Plan (QAPP). Under 40 CFR Part 122.41(e), the permittee is required to ensure adequate laboratory controls and appropriate quality assurance procedures in order to properly operate and maintain all facilities which it uses. Therefore, this permit requires the permittee to develop a QAPP that will assist in planning for the collection and analysis of samples in support of the permit and in explaining data anomalies when they occur. The proposed permit requires the permittee to submit a QAPP within 90 days of the effective date of the permit.

B. Best Management Practices (BMPs)

Section 402 of the CWA and federal regulation 40 CFR Part 122.44(k) authorize EPA to require best management practices (BMPs) in NPDES permits. BMPs are measures for controlling the generation of pollutants and their release to waterways. For municipal facilities, these measures are typically included in the facility Operation & maintenance (O&M) plans. These measures are important tools for waste minimization and pollution prevention.

The draft permit requires that the permittee develop a plan and implement BMPs within 180 days of permit issuance. EPA has a guidance manual (EPA, 1993) that may provide some assistance in the development of BMPs. Specifically, the permittee must consider spill prevention and control, optimization of chemical use, public education aimed at controlling the introduction of household hazardous materials to the sewer system and water conservation. Furthermore, it is considered a good management practice to maintain a log of daily plant operations and observations. To the extent that any of these issues have already been addressed, the permittee need only reference the appropriate document/section in its O&M. Additionally, the BMP operating plan must be amended whenever there is a change in the facility or in the operation of the facility which materially increases the potential for an increased discharge of pollutants.

C. Whole Effluent Toxicity (WET)

WET tests are laboratory tests that use small vertebrate and invertebrate species or plants to measure the toxicity of an effluent. The municipal application regulations (40 CFR Part 122.21[j][1]) require POTWs with design influent flows equal to or greater than 1.0 mgd, and POTWs with approved pretreatment programs, to submit results of WET testing with their permit application. Additionally, EPA regulations at 122.44(d)(1) in effect require whole effluent data and criteria when characterizing effluents. The WET approach measures the aggregate effect of all toxicants in the effluent.

The state of Alaska water quality criteria for whole effluent toxicity requires that the chronic criterion of 1.0 TUc be met at the point of discharge or at the edge of the mixing zone, if one is granted. The State has provided a draft allowable zone of initial dilution for WET of 90:1 thus, 90 TUc must be met at the end-of-pipe. Therefore, a trigger point of 90 TUc in the effluent was determined to be protective of the receiving water designated uses for the duration of this permit. Monitoring for stream flows have been incorporated into the draft permit so that this trigger could be re-evaluated during the next permitting cycle.

The draft permit proposes that WET testing be conducted semi-annually for three species. The results of the WET test shall be submitted with the DMR for the corresponding month and a final report will be due by the end of the month. The results of the WET testing will be considered during permit re-issuance.

VII. OTHER LEGAL REQUIREMENTS

A. Endangered Species Act

The Endangered Species Act (ESA) requires federal agencies to consult with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) if the agency's actions could beneficially or adversely affect any threatened or endangered species. Therefore, EPA requested a listing of threatened or endangered species in the vicinity of the City of Kodiak WWTP from NMFS and USFWS on November 12, 1998.

In a letter dated March 2, 1999, the US Fish and Wildlife Service (USFWS) identified the following federally-listed species in the area of discharge:

1. Endangered Species
   - Short-tailed albatross (Phoebastria albatrus)
2. Threatened Species
   - Steller's eider (Polysticta stelleri)
   - Aleutian Canada goose (Branta canadensis leucopareia)
3. Species of Concern
   - Bald Eagle (*Haliaeetus leucocephalus*)

In a letter dated December 15, 1998, the National Marine Fisheries Service (NMFS) identified the following federally-listed species in the area of discharge:

1. Endangered Species
    - Blue Whale (Balaenoptera musculus)
    - Fin Whale (Balaenoptera physalus)
    - Humpback Whale (Megaptera novaeangliae)
    - Northern Right whale (Eubalaena glacialis)
    - Steller (Northern) Sea Lion (Eumetopias jubatus)

At this time, EPA has determined that issuance of this permit is not likely to adversely affect any species in the vicinity of the discharge. In making this determination, EPA considered the following:

Short-tailed albatross: The primary cause for decline is hunting, loss of habitat, and human induced threats (entanglement in fishing lines, ingestion of plastic debris, contamination from oil spills, predation of rats). Issuance of this NPDES permit will not result in habitat destruction since the facility is pre-existing nor will it cause decline in population due to human induced threats.

Steller's eider: The primary cause for decline is unknown, however, lead poisoning, increased predation, hunting, habitat destruction, and marine contaminants that affect food availability are believed to have contributed to the species decline. Issuance of this NPDES permit will not result in habitat destruction since the facility is pre-existing nor will it cause increase predation of this species. Since the draft permit imposes Alaska water quality standards for marine aquaculture, including harvesting for consumption of raw mollusks, the permit issuance will not impact the food availability for this species.

Aleutian Canada goose: The primary cause for decline is increased predation by the arctic fox (Alopex lagopus) and decrease in wintering habitat due to urbanization. The issuance of this NPDES permit will not have no impact on these causes.

Bald eagle: The bald eagle is protected by the Bald and Golden Eagle Protection Act. The issuance of this NPDES permit will not have an impact on the habitat or subsistence for this species.

Blue, Fin, Humpback and Northern Right whales: The Blue, Fin, Humpback and Northern Right whales are not likely to be present in the shallow Woody Island channel where the proposed effluent will be discharged. Due to the high tidal flows through the channel, the effluent discharge will be well mixed prior to any

contact with these species. The issuance of this NPDES permit will not have an impact on the habitat or subsistence for these whales.

Steller's (Northern) Sea Lion: The primary cause for decline is subsistence impacts. The issuance of this NPDES permit will not have an impact on the subsistence for this species.

This fact sheet and the draft permit for the City of Kodiak WWTP will be submitted to the USFWS and NMFS for review during the public notice period. EPA is requesting concurrence from the USFWS and NMFS on the impacts of the draft permit and will consider their comments in the final permit. EPA will re-evaluate this determination and initiate consultation should new information reveal impacts not previously considered during this determination.

B. Essential Fish Habitat. Essential fish habitat (EFH) is the waters and substrate (sediments, etc.) necessary to fish for spawning, breeding, feeding, or growth to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires EPA to consult with NMFS when a proposed discharge has the potential to adversely affect (reduce qulity and/or quantity of) EFH. Since EPA has determined that issuance of this permit is not likely to adversely affect any EFH in the vicinity of the discharge, no further consultation is necessary.

C. State Certification. Since this permit authorizes discharge to Alaska State waters, Section 401 of the CWA requires EPA to seek State certification before issuing a final permit. This certification by the State ensures that federally issued permits are in compliance with the laws of the State. EPA is requesting Alaska State officials to review and provide appropriate certification to this NPDES permit pursuant to 40 CFR Part 124.53. Additionally, in accordance with 40 CFR Part 124.10(c)(1), public notice of the draft permit has been provided to the state of Alaska agencies having jurisdiction over fish, shellfish , and wildlife.

D. Coastal Zone Management Act. The applicant has certified that the activities authorized by the draft permit are consistent with the Alaska Coastal Management Plan. Pursuant to 40 CFR Part 122.49(d), requirements of the State coastal zone management program must be satisfied before the permit may be issued.

E. Permit Expiration. This permit will expire five years from the effective date of the permit.

F. Facility Changes or Alterations. The facility is required to notify EPA of any planned physical alteration or operational change to the facility in accordance with 40 CFR Part 122.41(1). This requirement has been incorporated into the proposed

permit to ensure that EPA and ADEC are notified of any potential increases or changes in the amount of pollutants being discharged. This will allow evaluation of the impact of the pollutant loading on the receiving water.

VIII. REFERENCES

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control.* U.S. Environmental Protection Agency, Office of Water, EPA/505/2-90-001, March 1991.

EPA. 1993. *Guidance Manual for Developing Best Management Practices (BMP).* U.S. Environmental Protection Agency, Office of Water, EPA/833/B-93-004.

EPA. 1996. *U.S. EPA NPDES Permit Writer's Manual.* U.S. Environmental Protection Agency, Office of Water, EPA/833/B-96-003.

AAC. 1997. *Water Quality Standards.* Alaska Department of Environmental Conservation, 18 AAC 70.

NMFS. 1998. *Habitat Assessment Reports for Essential Fish Habitat.* National Marine Fisheries Service, North Pacific Fishery Management Council, and Alaska Department of Fish & Game.

IX. ACRONYMS

ADEC	Alaska Department of Environmental Conservation
BMPs	Best management practices
BOD	Biochemical oxygen demand
BOD_5	Biochemical oxygen demand, five-day
°C	Degrees Celsius
CFR	Code of Federal Regulations
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
lb	pounds
mg/L	milligrams per liter
mL	milliliter
MSWLF	Municipal solid waste landfill
N	Nitrogen
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NR	Not required

OW	Office of Water
P	Phosphorus
POTW	Publicly owned treatment works
QAPP	Quality assurance project plan
sp.	Species
TRC	Total residual chlorine
TSD	Technical Support document (EPA, 1991)
TSS	Total suspended solids
TWTDS	Treatment works treating domestic sewage
USFWS	U.S. Fish and Wildlife Service
WET	Whole effluent toxicity
WLA	Wasteload allocation
WQBEL	Water quality-based effluent limit
WWTP	Wastewater treatment plant
ZID	Zone of initial dilution

APPENDIX A

PROCESS DESCRIPTION

CURRENT PROCESS

HEAD WORKS

- Rotary Drum Screens

PRIMARY TREATMENT

- Bio-tower w/ ABF trickling filter
- Settling & holding tank

SECONDARY TREATMENT

- Aeration basin (2)
- Clarifier
- Chlorine contact disinfection
- Flow measurement

BIOSOLIDS HANDLING

- Gravity thickening
- Dewatering (belt press)

NEW PROCESS

HEADWORKS

- Flow meter
- Rotary fine screens
- Screening compactor

PRIMARY TREATMENT

- Clarifier (2)

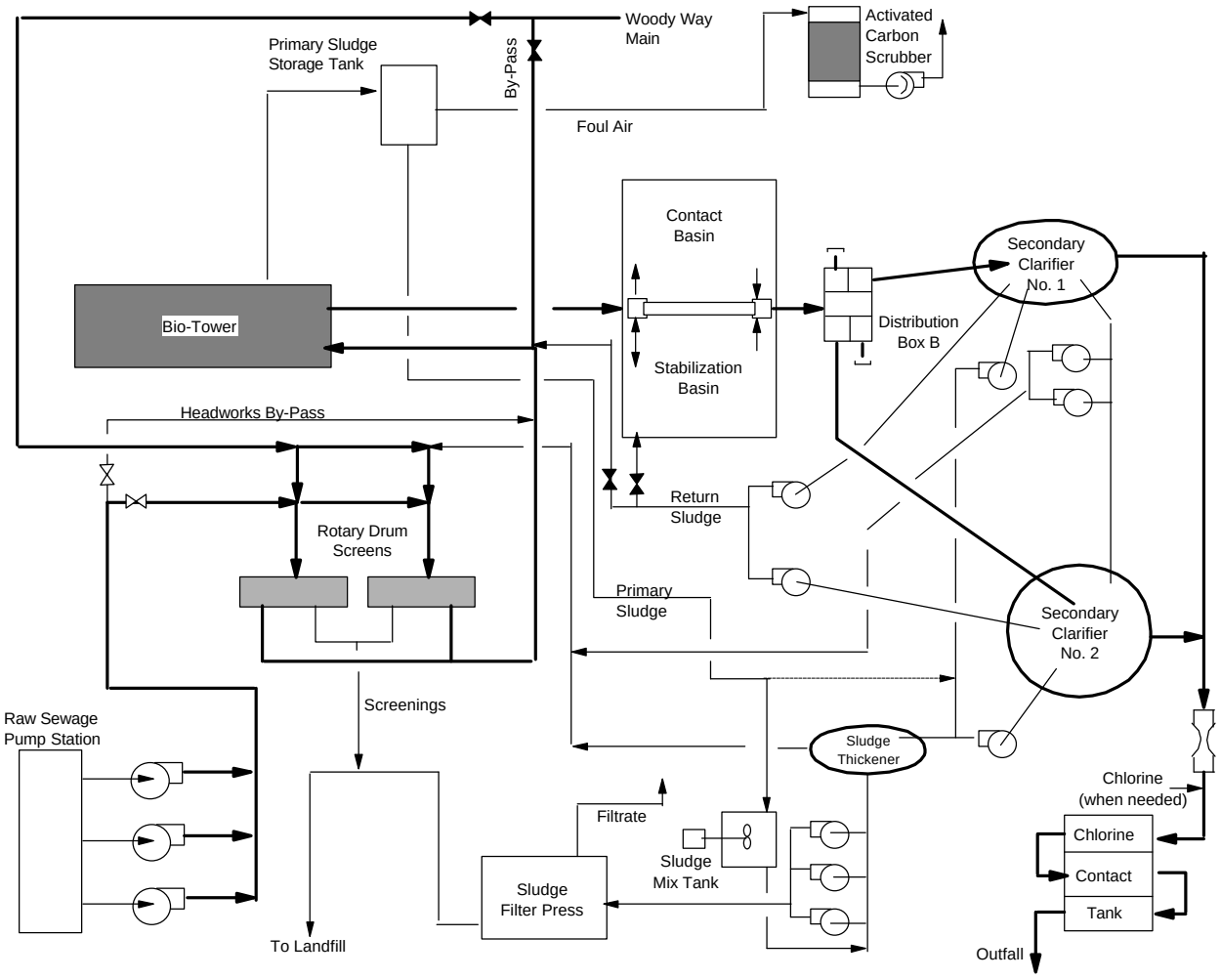
SECONDARY TREATMENT

- Aeration Basin (2)
- Clarifier (3)
- Chlorine contact disinfection
- Flow measurement

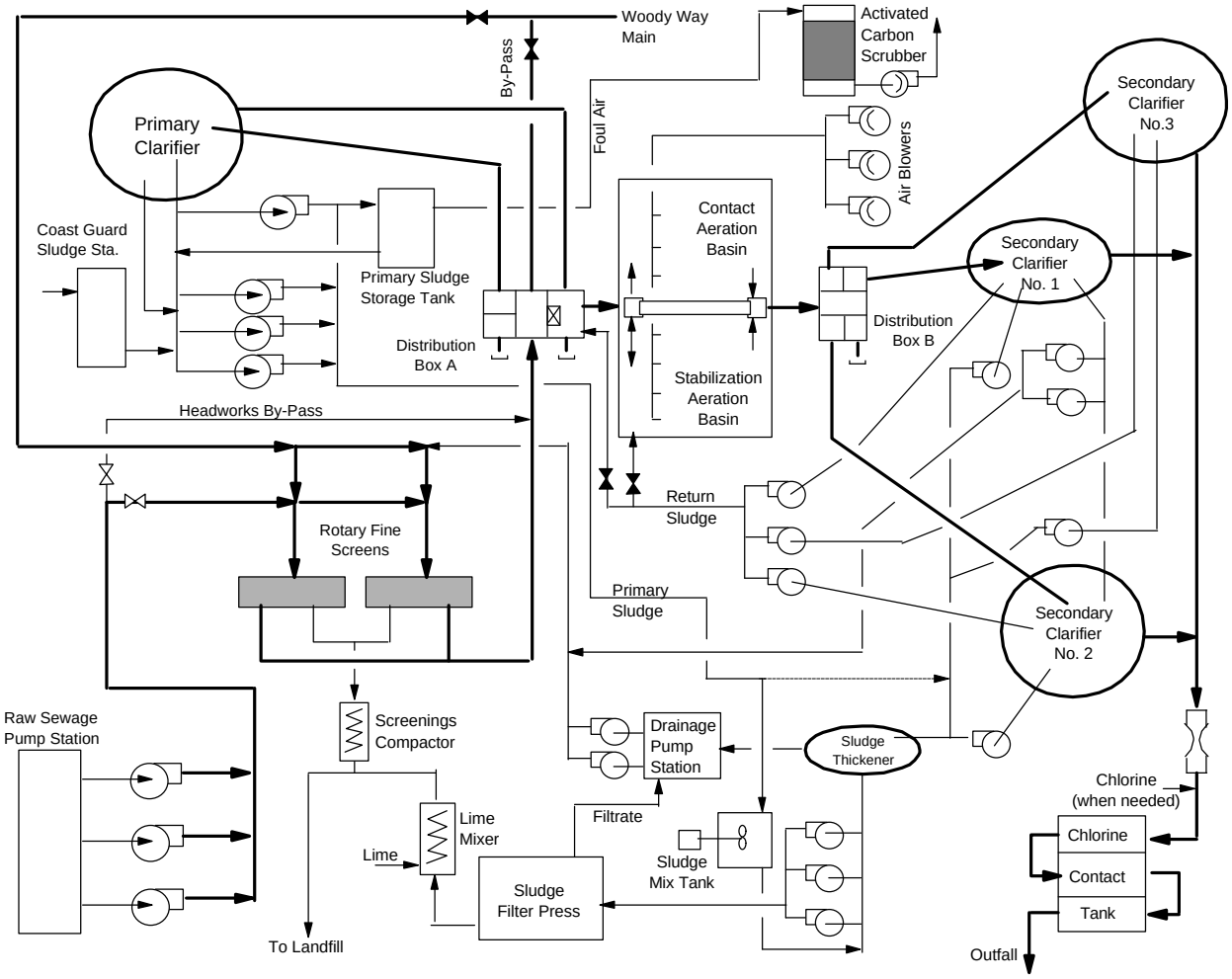
BIOSOLIDS HANDLING

- Gravity thickening
- Blending tank
- Belt filter press
- Lime treatment
- Activated carbon scrubber

Current Process Flow Diagram

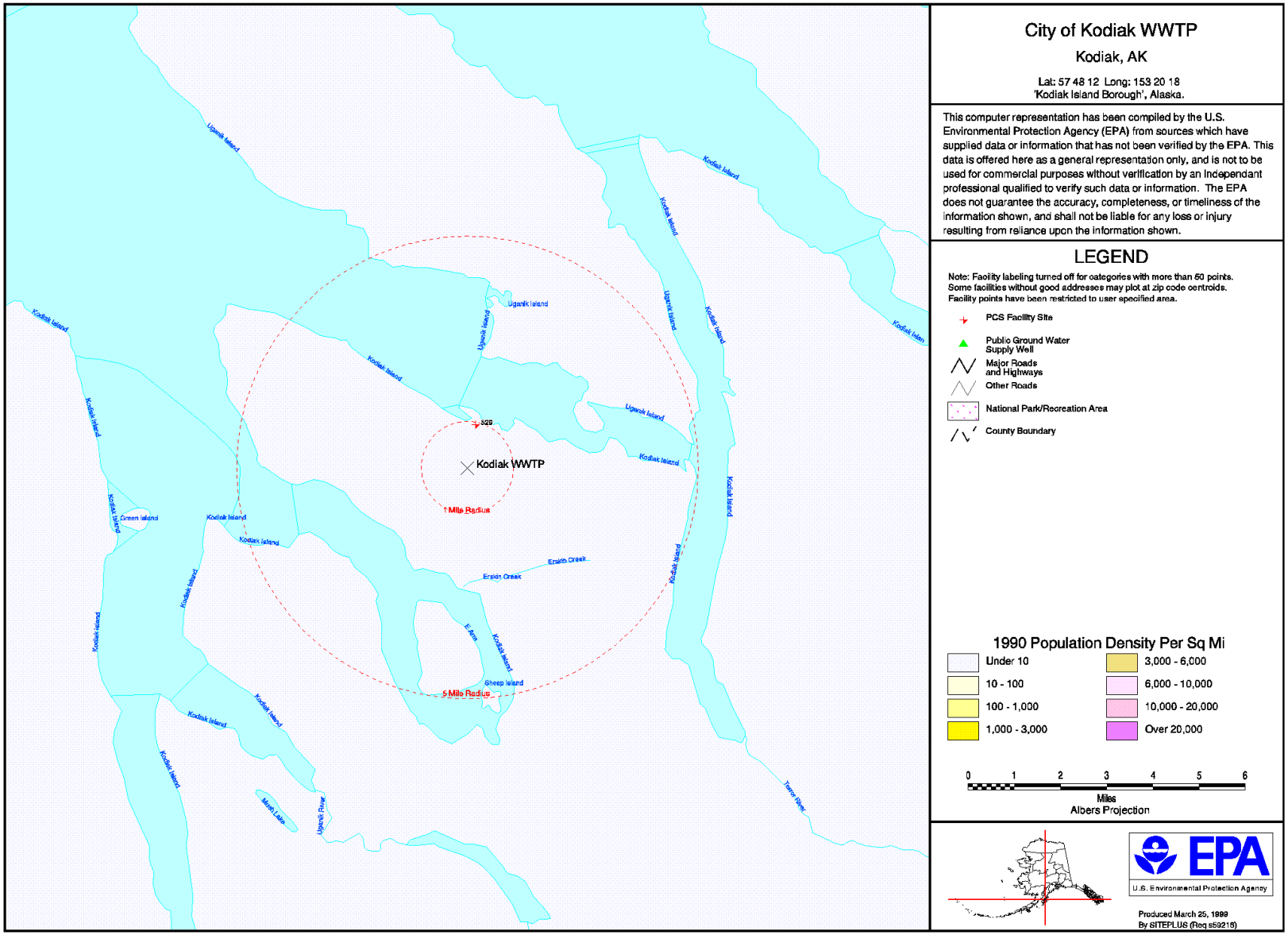


New Process Flow Diagram



APPENDIX B

MAP



City of Kodiak WWTP

Kodiak, AK

Lat: 57 48 12 Long: 153 20 18
'Kodiak Island Borough', Alaska.

This computer representation has been compiled by the U.S. Environmental Protection Agency (EPA) from sources which have supplied data or information that has not been verified by the EPA. This data is offered here as a general representation only, and is not to be used for commercial purposes without verification by an independant professional qualified to verify such data or information. The EPA does not guarantee the accuracy, completeness, or timeliness of the information shown, and shall not be liable for any loss or injury resulting from reliance upon the information shown.

LEGEND

Note: Facility labeling turned off for categories with more than 50 points.
Some facilities without good addresses may plot at zip code centroids.
Facility points have been restricted to user specified area.

- PCS Facility Site
- Public Ground Water Supply Well
- Major Roads and Highways
- Other Roads
- National Park/Recreation Area
- County Boundary

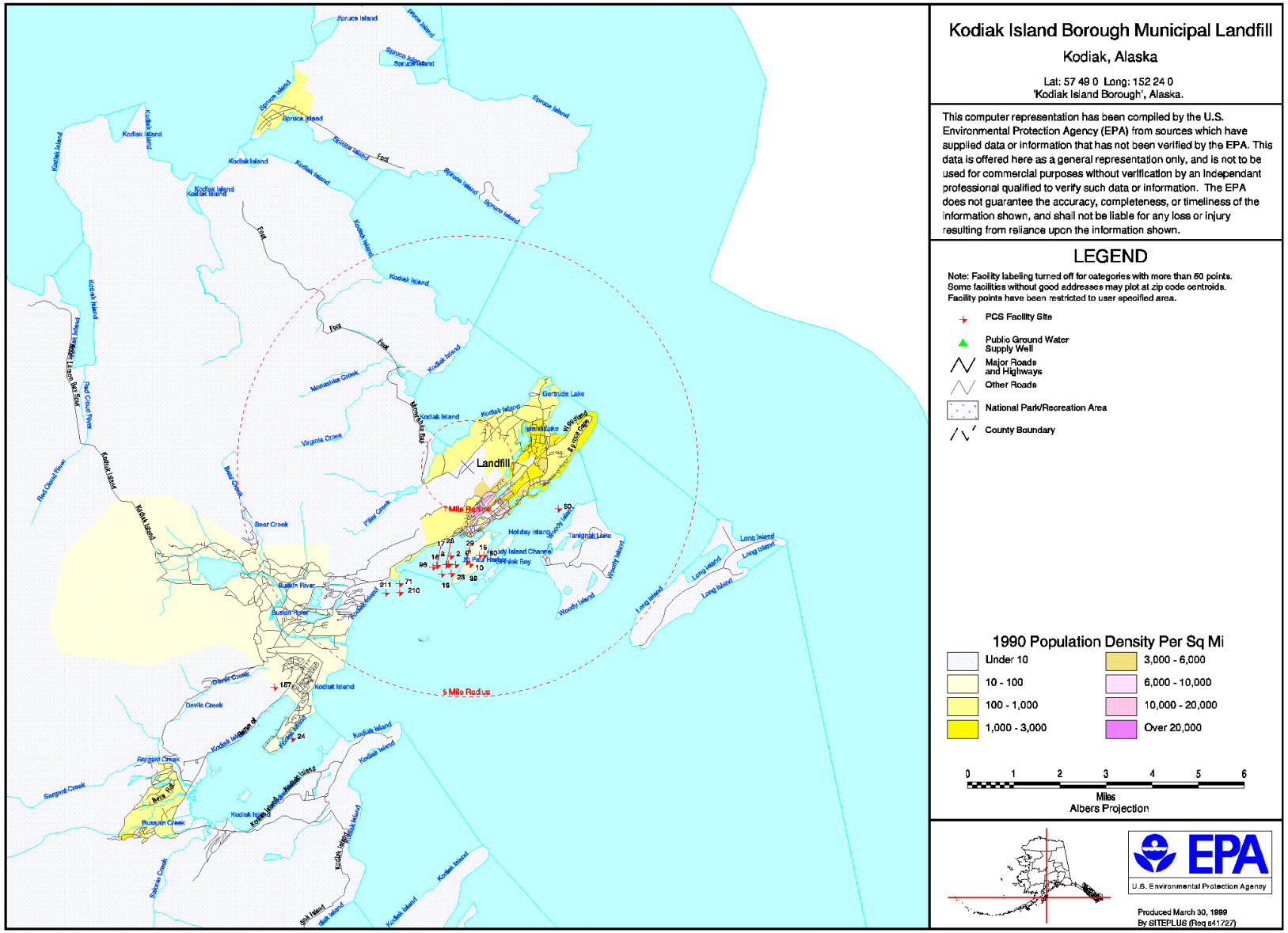
1990 Population Density Per Sq Mi

Under 10	3,000 - 6,000
10 - 100	6,000 - 10,000
100 - 1,000	10,000 - 20,000
1,000 - 3,000	Over 20,000

0 1 2 3 4 5 6
Miles
Albers Projection

EPA
U.S. Environmental Protection Agency

Produced March 25, 1999
By SITEPLUS (Req s59216)


Kodiak Island Borough Municipal Landfill
Kodiak, Alaska
Lat: 57 49 0 Long: 152 24 0
'Kodiak Island Borough', Alaska.
This computer representation has been compiled by the U.S. Environmental Protection Agency (EPA) from sources which have supplied data or information that has not been verified by the EPA. This data is offered here as a general representation only, and is not to be used for commercial purposes without verification by an independant professional qualified to verify such data or information. The EPA does not guarantee the accuracy, completeness, or timeliness of the information shown, and shall not be liable for any loss or injury resulting from reliance upon the information shown.
LEGEND
Note: Facility labeling turned off for categories with more than 50 points.
Some facilities without good addresses may plot at zip code centroids.
Facility points have been restricted to user specified area.
PCS Facility Site
Public Ground Water Supply Well
Major Roads and Highways
Other Roads
National Park/Recreation Area
County Boundary
1990 Population Density Per Sq Mi
Under 10
10 - 100
100 - 1,000
1,000 - 3,000
3,000 - 6,000
6,000 - 10,000
10,000 - 20,000
Over 20,000
0 1 2 3 4 5 6
Miles
Albers Projection
Landfill
5 Mile Radius
EPA
U.S. Environmental Protection Agency
Produced March 30, 1999
By SITEPLUS (Req s41727)

APPENDIX C

PERMIT LIMIT DERIVATIONS

1. Copper

Step 1. Is there reasonable potential to exceed water quality standards?

Maximum reported value (MRV) = 0.013 mg/L
Reasonable potential multipier (RPM) = 3.8 (6 samples, CV=0.6)
Projected maximum C_d = MRV * RPM = 0.049 mg/L
where C_d is the maximum observed discharge concentration
Dilution ratio (DR) = 90:1
$C_r = C_d * DR$ = 0.00054 mg/L
where C_r is the receiving water concentration

0.00054 mg/L < 0.0029 mg/L (WQS: acute criterion)

Does not need WLA.

2. Lead

Step 1. Is there reasonable potential to exceed water quality standards?

Maximum reported value (MRV) = 0.002 mg/L
Reasonable potential multipier (RPM) = 3.8 (6 samples, CV=0.6)
Projected maximum C_d = MRV * RPM = 0.0076 mg/L
where C_d is the maximum observed discharge concentration
Dilution ratio (DR) = 90:1
$C_r = C_d * DR$ = 0.000084 mg/L
where C_r is the receiving water concentration

0.000084 mg/L < 0.0056 mg/L (WQS: acute criterion)

Does not need WLA.

3. Silver

Step 1. Is there reasonable potential to exceed water quality standards?

Maximum reported value (MRV) = 0.0024 mg/L
Reasonable potential multipier (RPM) = 3.8 (6 samples, CV=0.6)
Projected maximum C_d = MRV * RPM = 0.0091 mg/L
where C_d is the maximum observed discharge concentration
Dilution ratio (DR) = 90:1
$C_r = C_d * DR$ = 0.0001 mg/L
where C_r is the receiving water concentration

0.0001 mg/L < 0.0023 mg/L (WQS: acute criterion)

Does not need WLA.

4. Zinc

Step 1. Is there reasonable potential to exceed water quality standards?

Maximum reported value (MRV) = 0.041 mg/L
Reasonable potential multipier (RPM) = 3.8 (6 samples, CV=0.6)
Projected maximum C_d = MRV * RPM = 0.156 mg/L
where C_d is the maximum observed discharge concentration
Dilution ratio (DR) = 90:1
$C_r = C_d * DR$ = 0.0017 mg/L
where C_r is the receiving water concentration

0.0017 mg/L < 0.0029 mg/L (WQS: acute criterion)

Does not need WLA.